REMARKS

Claims 14 has been amended. Claims 15-16, 18-19, and 41-19 remain unchanged.

The Examiner rejected claims 1-16, 18, 19 and 41-19 under 35 U.S.C. 103(a) as being unpatentable over Chandrasekhar (US Patent 5,689,122) in view of Raj et al. (US Patent 5,414,726)

Chanrasekhar disclosed: A monolithic photoreceiver using vertically integrated optical converters and (TIA), control and decision circuits using heterjunction bipolar transistor. Figure 2, depicts the integration of waveguide, PIN and HBT.

In the present invention, the inventors propose a monolithic optically pre-amplified photoreceiver, comprising of: 1) vertical integrated VCSOA (optical preamplifier) and optical converter (ex: PIN), and 2) monolithically integrated Trans-impedance Amplifier (TIA), control and decision circuits using Resonant Tunneling Bipolar Transistor (RTBT).

The inventors are not replacing the HBT based preamplifier with optical amplifier, but uses both electronic (TIA) and optical amplifiers (VCSOA). Figure 1, shows the monolithic integrated optically pre-amplified photoreceiver as compared to Figure 2 proposed by Chanrasekhar integration of waveguide, PIN and HBT based amplifier to form a monolithic photoreceiver.

Raj disclosed a device that provides simultaneously optical amplification and modulation of the light beams. He also proposed use of top DBR as filter. Further Raj teaches bi-dimensional arrays using a single Fabry-Perot device.

In the present invention, the inventors propose arrays obtained using vertically integrated VCSOA (optical preamplifier) with optical converter (ex; PIN photodiode). Further, the present inventors also propose the use of integrated device:{(VCSOA (optical preamplifier), Optical converter (ex: PIN) and electronics (ex: TIA)} shown in the Figure 1 to form the arrays. In this embodiment, each pixel (vertically integrated VCSOA and PIN) is connected to TIA and control circuits.

Nowhere did Chandrasekhar and Raj disclose the use of resonant tunneling transistor. Thus, by limiting claim 14 to using resonant tunneling transistor for the trans-impedance amplifier, control and decision circuits, it is believed that claim 14 is no longer unpatentable over Chandrasekhar in view of Raj. It follows that the dependent claims of claim 14, i.e. claims 15-16, 18-19 and 41-49 are also no longer unpatentable.

In view of the above, it is submitted that claim 14, as amended, and it dependent claims 15-16. 18-19 and 41-49 are in condition for allowance. Reexamination of rejections is requested.

Allowance of claims 14-16, 18-19 and 41-49 at an early dated is solicited.

Enclosed please a check ($60) for one-month time extension in response.

Respectfully submitted,

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